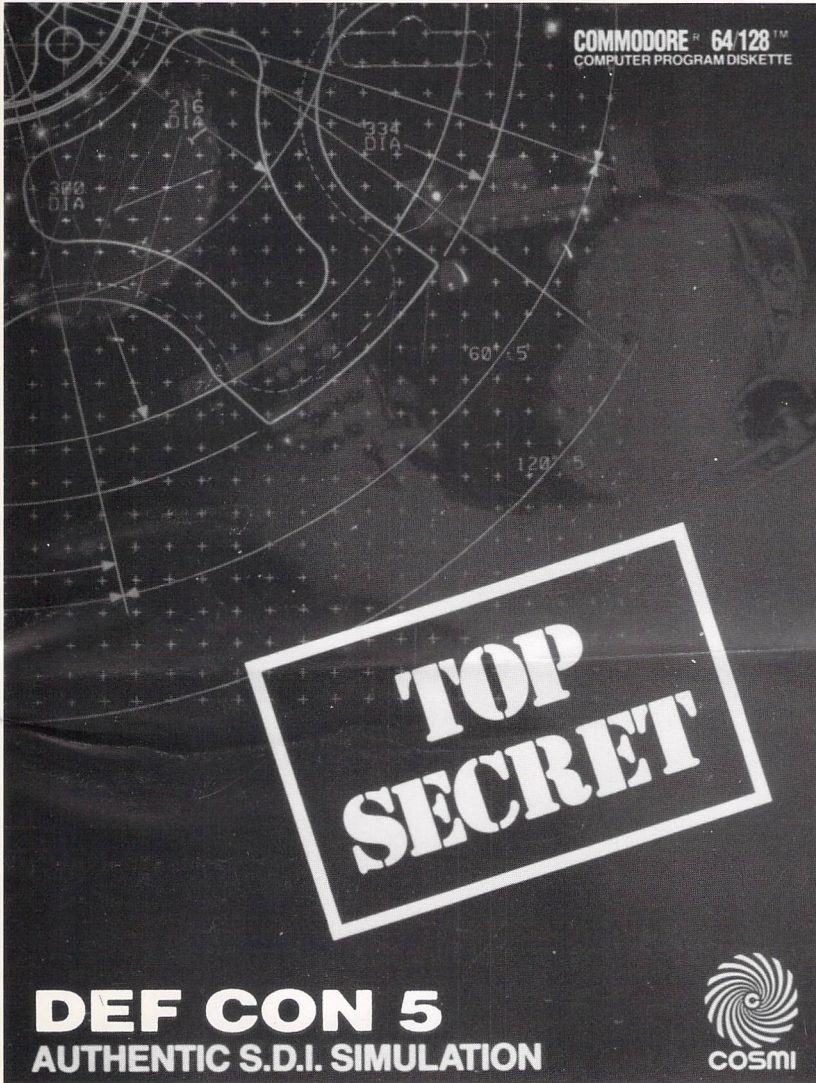




 **COSMI**
Tomorrow's Reality...Today

Def-Con 5 - a simulation of the Star Wars Defense System, *the ultimate authentic simulation*, demonstrating that however powerful or complicated computer programs become, it is ultimately the human hand and human mind that decides!

EXECUTIVE OVERVIEW

Pursuant to DOD (Department of Defense) Directives 31/BMD/A through 37/BMD/L and in keeping with the provisions and constraints of NATO, Salt I-III, and SWAP (Space Weapons Acquisition and Prohibitions) Treaties of 1992, the United States has implemented and deployed a limited BMD (Ballistic Missile Defense System).

The system configuration adheres to the limitations of the 1990 DOD appropriations bill and as such is quantitatively different from original proposals. This "scaled-down" version of the project retains the five-phase "gauntlet" design utilizing ground-based, land-launched and space-based system components. All alterations to the original proposal were made to maximize "upgrade" capability through either redundancy or technological improvements based on future appropriations and/or geopolitical necessity.

In compliance with SWAP, the system as a whole does not, nor does any isolated component, pose any substantial threat to terrestrial properties or activities. All guidelines and restrictions adopted by formal agreements and treaties concerned with space oriented defensive systems have been strictly observed and as such, the system cannot be regarded or utilized as other than a ballistic missile defense and deterrent.

PRINCIPAL OBJECTIVES

The system is designed to destroy, defeat, confound or destabilize ballistic missiles throughout the period beginning approximately one minute into boost phase to approximately three minutes before continental impact.

Given current Soviet Ballistic capability, this constitutes an operational phase duration of approximately twenty minutes.

Result computation of test simulation studies based on single-station control indicates a 40 percent to 60 percent effectiveness in the environment of a full scale Soviet-launched nuclear strike. These results improve proportionately as the assault-size decreases to limited debilitating strategic attack levels.

Non-Soviet-launched attack studies, that infer considerably smaller numbers of warhead incursions, indicate dramatic improvements in result effectiveness up to 100 percent. A non-Soviet ballistic capability is implied as the system has no inherent tactical or conventional forces countermeasure ability. In the absence of aggressions, the system employs two sub-systems — one for surveillance segment includes satellite networks both dedicated to the system as well as periodic access to existing networks, placed in orbit prior to BMD implementation. Multiple observation stations in single high-earth orbit with variable imaging allows semi-continuous coverage of selected terrestrial areas evaluated as "prime sites." Both the imaging capability and area selection are based on the limited interest of the system-specifically, ballistic missile activity. High altitude, low-resolution coverage, through a design and fiscal compromise, is adequate for the singular requirements of the system.

The protection segment is designed to maximize survivability of the master system within the confines of international agreements regarding ASAT (Anti-Satellite) weapons, space-based offensive systems and enforcement of negotiated ISM (Immediate Satellite Environment) boundaries, or "keep out zones." Protection is provided by a three component configuration of anti-space mine robots (ASM), decoy deployment detonators (D3), and multi-track thermal target interceptors (MT31). These are maneuverable elements within the parameters of the orbits of the main system components that they protect to allow realtime position and action assignment due to limited numbers of units and therefore necessary multiple areas of responsibility.

SYSTEMS SUMMARY

1. Ground-based chemical laser (GCL)

There are six GCL facilities - four in the United States, one in England and one in Australia. The GCL is a directed-energy weapon of high power utilizing a chemical lasant (classified) to generate an intense beam of infrared radiation once every three seconds for a period of one minute. The targeting mechanism can achieve one degree of arc per second.

2. Orbiting laser reflector (OLR)

Satellites equipped with mirrors to divert directed radiation from terrestrial sources to computed targets back on the earth. There are 24 OLR'S distributed in two orbital trajectories to provide a minimum of four targeting satellites within range of the GCL's on a regular period basis.

The advantage of the GCL/OLR combination is predominantly targeting capability. A fixed based laser has few direct targeting options and can easily be out-maneuvered. There are also atmospheric absorption, scattering and turbulence problems confronting direct targeting lasers.

3. Free-Election Laser (FEL)

The space-based FEL generates a stream of electrons accelerating at nearly the speed of light that can at minimum disrupt the electronics of a ballistic missile in space or at maximum so disable the missile's internal systems as to cause course failure or even premature denotation. These weapons are evolved from particle accelerator technology and resemble small cyclotrons on orbiting space platforms. There are eight FEL platforms based in space on trajectories that place them over strategic areas within a ten minute margin. FEL's are exo-atmospheric weapons and are effective only against missiles that have achieved orbit above the earth's atmosphere (approximately six-seven minutes after launch).

4. Neutral Particle Beam (NPB)

NPB weapons are space-based high-energy accelerators that emit super-radiant beams of heavy, electrically neutral particles (only neutral particles can travel a straight path through the earth's magnetic field).

The beams are of intensities sufficient to penetrate even hardened targets and produce a hard kill at ranges of up to 10,000 kilometers. NPB Weapons are also exo-atmospheric, effective only against targets in space. There are six NPB space platforms deployed in a single orbit and are intended as a back-up system to the FEL weapons.

5. Electro-Magnetic Launcher (EML)

The EML, also called a "rail gun," is a super conducting electro-magnet consisting of two copper rails between which is carried a complex projectile, known as a "smart bullet." Powered by instantaneous bursts of energy conducted through the liquid nitrogen-cooled rail assembly, the bullet is "fired" from the gun at a rate of approximately three miles per second. As a kinetic-energy weapon, the EML could effectively destroy missiles with impulsive force. However, to maximize kill-potential, the "smart bullet" is actually a device capable of tracking multiple targets, calculating relative positions and then detonating itself to create a shock wave that destabilizes and, at close range, disables missiles in space. The destabilized missiles are thrown off course, allowing more time for ground-tracking with land-or-sea launched interceptors. There are sixteen EML's in orbits that place at least four vehicles in range of a midcourse-phase salvo.

6. Nuclear-pulsed X-ray laser (NXL)

The NXL is a land-launched endo-atmospheric device that employs a nuclear explosion as the lasing pump. It is carried atop a standard ballistic missile in place of the warhead assembly. At an altitude of maximum effectiveness over the continental United States, based on the relative altitudes of incoming ICBM's, and also at an altitude of minimum terrestrial exposure the nuclear component is detonated and in the first billionth of a second before destruction a lethal concentration of x-ray radiation is focused through diffraction gratings placed 360° around the outer shell. In effect, a disk-shaped plane of x-ray wavelength radiation with a maximum effective radius of 1000 kilometers is instantly created. Any ICBM's passing into or through this plane will be destroyed. The NXL device must be launched, as opposed to space-based, because of the non-proliferation of nuclear weapons in space treaties. And though it is not a conventional nuclear bomb, it is the only nuclear-powered destructive weapon in the BMD System. There are many NXL modules available at several U.S. Launch Sites. However, the time-frame for use of these devices is limited and also there does exist a terrestrial risk-factor because of the relatively low altitudes involved and the danger of atmospheric radiation contamination over the United States. The proposal regards these weapons as a "last resort" option for use against ICBM's that have penetrated all the other defense mechanisms.

7. Anti-space-Mine-Robots (ASM)

The exo-atmospheric maneuverable operational vehicles are equipped with limited-range pulse drives and articulated rotating manipulators.

Video monitoring is accomplished with a fixed view, infinity focused camera mounted atop the vehicle facing forward. The LPD's fire a non-destructive pulse of thermal energy to deflect the path of a space mine away from the potential target. The ARM is used in a situation of close proximity to BMD platforms on vehicles and can be effective in disarming or jamming space mines. Space mines are salvage-fused ("booby-trapped") and therefore use of the ARM is a high risk operation. There are ten ARM's deployed.

8. Decoy Deployment Detonators (D3)

Each BMD platform and vehicle carries a limited supply of D3 cartridges. The D3's are pumped out by electric solenoid-powered impulse and detonate at a range of 500-1500 meters, releasing a cloud of chaff (metal foil scraps) to obscure radar tracking for interceptors.

9. Multi-Track Thermal-Target Interceptor (MT31)

The MT31 is an orbiting MV (miniature vehicle) launcher carrying sixteen non-nuclear interceptor rockets. The rockets are anti-interceptor interceptors and are ineffective against ballistic missiles. The MT31's are maneuverable and rockets are targeted and fired by ground operators. There are twenty MT31's in multiple low-earth orbits.

POLICY EVALUATION

Official policy governing the use of a Ballistic Missile Defense System states that any or all of the system components may be deployed, maintained, replaced and, within the restrictions of VST (Verifiable Space Test) guidelines, periodically tested. In peacetime mode (DefCon 5) no ASAT (Anti-Satellite) capability may be employed by the system with the single exception of ISM boundary ("Keepout Zones") enforcement.

During international crises situations (DefCon 4) BMD system components may be brought to full readiness in both firing capability and orbiting vehicle positioning. BMD system protection measures may be placed in stand-by mode and any countermeasures against the system may be responded to at the option of ground-based command and control. Any counter-measures taken to threaten the BMD system or any of its components will automatically escalate the situation to DefCon 3 status. DefCon 3 allows all military forces, conventional and nuclear, to be brought to full readiness and land, sea and air units to be mobilized to fail safe positions.

Any launch of ballistic missiles, automatically assumed to have nuclear warheads, detected by BMD or other surveillance networks will establish a DefCon 2 status. At DefCon 2 any action taken to defeat or destroy ballistic missiles launched against the United States or its territories or the territories of its allies will be at the sole discretion of HQ Command and Control and/or its authorized operators. Any ballistic missiles entertain the legal airspace of the United States or its allies will establish a DefCon 1 status. At DefCon 1 all military forces may be activated against the offending nation at the discretion of HQ Command and Control. BMD systems will continue to thwart any ballistic missile attacks and respond to ASAT countermeasures until a cessation of hostilities is formally observed.

COUNTERMEASURE ASSESSMENT

The Soviet response to BMD research, development and deployment by the United States has been a reevaluation of their ABM efforts in light of technological and strategic comparisons with results of concerted western initiatives and political and military objectives. The results of these studies have been an almost exclusive commitment to ASAT technology. The arsenal developed as of this date includes Orbiting Multiple Rocket Launchers (OMRL) that can disable or destroy BMD system components, Co-orbital Satellite Interceptors (CSI) that are capable of targeting U.S. vehicles in orbits as high as 7000 kilometers. As land-launched, low-payload vehicles, several CSI's can be launched from multiple sites every hours. There is also evidence that some Soviet recon and communication satellites may be deceptively carrying explosive material, possibly nuclear. If so, these satellites pose a significant and virtually indefensible threat to BMD systems. Clearly designated spacemines are also ready for use at ASAT weapons. However, international agreements prohibit such devices in space as their purpose is inherently hostile. Tactically, spacemines would be put in orbit in anticipation of a strategic attack.

STATION DESCRIPTION

The single operator control station was designed to provide the BMD system with complete command and control facilities even if high-level command centers such as NORAD are disrupted. In the event that all HQ command links were broken, these independent operator stations can run the entire system as long as at least one microlink transmitting station was on-line. the station is a computer terminal post that can be located at military installations, government facilities or even in private civilian residences.

CONTROL SCREEN

STATION STATUS — Indicates if the station is active or inactive. An inactive station has no command, control or communications capability but does have access to some informational data sources. A station is activated by HQ Command. Active stations have full control of the BMD system within the directives of superior authority.

CHRONOMETER — A realtime (local) clock set by the operator during initialization procedures.

MICROLINK STATION — The currently transmitting communication station selected by the operator. One of eight stations, located in the continental U.S., must be on-line for satellite control to function.

DEFCON — The current Defense Condition status as determined by HQ Command. Status significance is discussed in **POLICY EVALUATION**.

ALERT TIME — A decrementing (countdown) chronometer that displays elapse time from detected ICBM launch to impact of U.S. soil. With multiple traces the timer reverts to the next earliest track.

TRACES — The number of detected ICBM's inbound and on course. The tracking is continuous and missiles interfered with by BMD measures will be decremented from the count.

ONLINE — Displays the designation of the component the operator is currently in contact with. Functioning components are available to the operator thru a single channel bounce-feed signal.

COM HQ — Signals communications from HQ Command. This signal must be acknowledged by the operator within one minute or the station will be automatically deactivated.

DATA IN — Indicates terminal readiness to send and receive digital transmissions.

VRS — (Visual Reconnaissance Satellite) Displays the number of functioning surveillance satellites.

GCL — (Ground-Based Chemical Laser) Displays the number of active facilities.

OLR — (Orbiting Laser Reflectors) Displays the number of functioning units.

FEL — (Free-Electron Laser) Displays the number of functioning platforms.

NPB — (Neutral Particle Beam) Displays the number of functioning platforms.

EML — (Electro-Magnetic Launcher) displays the number of functioning platforms.

NXL — (Nuclear-Pulsed X-ray Laser) displays the number of units currently ready for launch.

SYS — Displays a numeric as a diagnostic indicator of internal system conditions. 0000 indicates 'no error.'

Displays the number of functional units.

EXT — Indicates if the terminal is on or off. If the terminal is off but the system is still active the operator must re-enter the access code to proceed.

LOADING DEFCON 5

AMIGA 1000:

Insert Kickstart 1.2 disk in drive 0 and turn power on.

When Workbench prompt appears, remove Kickstart disk and insert DefCon5 disk in drive 0. DefCon5 will auto-load and display the title screen. When loading is complete, the title will fade out and the main Control panel will appear.

AMIGA 500/2000:

Insert DefCon5 disk in drive 0 and turn power on.

DefCon5 will auto-load and display the title screen. When loading is complete, the title will fade out and the main Control panel will appear.

INITIALIZATION PROCEDURES:

Use the mouse to click on the 'PWR' button located at the lower right side of the control panel. Scrolling text will appear in the strip message window instructing you to 'Access Map04.' To establish satellite communication, click on the 'MAP' button on the left side of the control panel, then click on the 'MAP04 MICROLINK STATIONS' menu item.

A map of the continental United States will appear with microlink stations represented by a radar dish icon and a 5 character alpha-numeric designation. Follow the on-screen instructions and click on the microlink station nearest your geographic location.

Back at the control panel, a logon sequence will commence. Use the keyboard to enter the access code 'AA001.' Enter the local military time in 4 digits (00:00—23:59). This completes the logon procedure. Your station is now fully operational.

Continue to follow the various text instructions and prompts. Use the mouse to select menu options, activate buttons and control on-screen objects/devices.

INFORMATION SCHEDULES

INFO1—VRS—Visual Reconnaissance Satellites
INFO2—FEL—Free Electron Laser schedule
INFO3—NPB—Neutral Partical Beam schedule
INFO4—EML—ElectroMagnetic Launcher schedule
INFO5—GCL/OLR—Ground based Chemical Laser/Orbiting Laser Reflectors
schedule
INFO6—AMS—Anti-SpaceMine orbital quadrant scanner
INFO7—MTI—Multi-track Thermal Target Interceptor schedule
INFO8—NXL—Nuclear X-ray Laser launch sites

OPERATIONAL MAPS

MAP01 — Western Hemisphere radar tracking.
MAP02 — Eastern Hemisphere radar tracking.
MAP03 — U.S.A. radar tracking.
MAP04 — Microlink transmissions stations.
MAP05 — U.S.S.R. radar tracking
MAP06 — Global satellite plot schematic.

VRS PRIME SITE DESIGNATION AND DESCRIPTION TABLE **(Refer to INF01)**

PL01 — North polar region

NE02 — Near East

EU03 — Europe and the Mediterranean

NA04 — Eastern Canada and United States

NA05 — Southeastern United States and Cubs

CA06 — Central America

US07 — Southwestern United States

NA08 — Western Canada and United States

BS09 — U.S.S.R. and Alaska

ER10 — Eastern Russia

SA11 — Southeast Asia

SU12 — Western Soviet Union



**DEFCON 5
AMIGA SYSTEMS
MODIFIED/EXTENDED USER
INSTRUCTIONS**

DEFCON 5 - SUPPLEMENTAL INSTRUCTIONS

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CONTROL SCREEN FUNCTIONS

“PWR button—The on/off switch for your station. Turning power off will reset the simulation and allow you to start over without having to re-boot your Amiga.”

“INFO button—Displays the Information Schedule menu. Click on the menu item you wish to view.”

“MAP button—Displays the Operational Maps menu. Click on the menu item you wish to view.”

“HELP button—Displays a summary of commands and instructions.”

ATTACK SEQUENCE

After the transmitting station (MAP04) is established and Com HQ notified (AA001) events will proceed as follows:

A. Spacemines will be deployed against BMD Systems. An anti-spacemine-robot must be sent to defuse a mine(s).

B. Interceptors will be launched at the system. Weapons must be maneuvered out of risk while an MTI shoots down the interceptors.

C. ICMB's are launched from somewhere inside the USSR on 1 or more courses targeted for the U.S. The GCL/OLR System must be activated during the boost phase of the launch. Space weapons are used in the orbit phase.

D. ICBM's enter U.S. airspace. NXL launch must be initiated before impact.

DEFCON 4 — SPACEMINE INCURSION

Code INFO6 activates the satellite trackquadrant map. The Quadrant Map displays the relative positions of Spacemines and ASMs (anti-spacemines). You must intercept the spacemine with the ASM before the mine reaches quadrant 19 where it will detonate and destroy one of the weapon platforms. Spacemines move sequentially through the quadrants (1, 2, 3...) while you move ASMs across the plane horizontally, vertically or diagonally (6, 7, 8, 9 or 2, 5, 7, etc.). The ASM must stay in the quadrant boundaries (boxes) of the map or it will leave orbit and be lost.

To guide the ASM, decide which direction you want it to move, then click on the quadrant box that the ASM is currently in. The display will change to a closeup view of that quadrant, with a coordinate grid superimposed over it. Click on one of the coordinate numbers around the grid and the ASM will begin to move toward it. Once in motion the ASM will stay in motion and leave the quadrant being viewed. To monitor the ASM's progress, click on the MAP bar at the top of the panel. The view will switch back to the quadrant map. Continue to alternate between the map and grid views as you make course corrections. Once the ASM contacts the spacemine, the video camera aboard the ASM will begin transmitting the view from space.

DEFUSING SPACEMINES

To de-fuse the spacemine you must use the articulated manipulator claw to remove the hatch cover and fuse located on the bottom of the mine and then replace the hatch cover in the mine. The mouse controls the movement of the claw. The left mouse button opens and closes the jaws of the claw. The jaws will not open or close while the mouse is being moved.

Start by positioning the ASM directly beneath the mine. You do this by 'reaching' for the mine with the claw. If the mine is out of reach, the ASM's thrusters will automatically fire in the appropriate direction to move the ASM toward the mine. As the mine begins to get close, move the claw to its other extreme. This will fire the ASM's thrusters in the opposite direction and slow the rate of closure.

When the ASM is stopped directly beneath the mine, move the open claw up to the hatch cover, center it exactly around the knob, click and hold the left button to grab the knob, then move the mouse straight down until the hatch cover is clear of the mine. Release the button to open the claw. Go back up and do the same thing with the fuse. After removing the fuse, grab the hatch cover again and replace it exactly in the mine. This de-fuses the mine and the view will return to the quadrant map.

You have 30 seconds after touching the hatch cover until the mine detonates and destroys both itself and the ASM. Touching any other part of the mine will cause immediate detonation. During the de-fusing process the ASM may drift unpredictably.

DEFCON 3 - INTERCEPTOR ATTACK

Interceptors are launched against low orbit space weapons (FEL, EML, NPB). Any operational weapon may be selected randomly to protect. Access the weapon schedule and determine the sector. Enter the weapon designation on the control screen and then access the VRS schedule to locate the sector. Call up the imaging satellite. The MTI will automatically be dispatched to the sector.

Control the spacecraft with the mouse to maneuver out of the way of the attack rockets while the MTI attempts to shoot them down. The interceptors will track the weapon and the MTI will track the interceptor. It is therefore possible to aid the MTI operation by leading the interceptor into the firing line. If the weapon is hit select another. The attack continues until all interceptors are eliminated.

DEFCON 2 — LAUNCH DETECTED

Access MAP05 to locate USSR launch site sectors and note the longitude and latitude of the site for targeting. Access the OLR schedule for the GCL/OLR combination for the sector. At the control screen enter the GCL and OLR designations in that order. Then access the imaging schedule for the VRS designation and image sector.

The OLR is automatically moving to its targeting location. When it stops use the mouse to control the laser alignment mechanism.

A number 00-99 in each corner of the screen displays the mirror alignment to the target. All 00 means on target and lasing is initiated with the fire button. The missiles are not visible at this altitude but an explosion can be seen. By experimenting with the alignment control the circular relationship of the numbers becomes evident. All Mouse directions are useful. This action terminates at the end of the boost phase.

ICBM COUNTERMEASURES

During the period between the end of the boost phase and violation of U.S. airspace, enemy ICBM's are in low earth orbit and are dealt with by free electron lasers, electro-magnetic launchers and neutral-particle beam weapons.

The first half of this phase can be tracked on MAP02 and the second half of MAP01. The radar tracking maps will display radar 'blips' for each group of ICBM's. Select a weapon and then access the VRS schedule (INF01). Enter the VRS designation at the control screen (HINT: If radar indicates ICBM's are in the North-Eastern area of the earth, for example, then select a weapon and VRS designation appropriately).

Fire at the ICBM's using the 'F' key and control the direction of the weapon with the arrow keys. Avoid collision with missiles and ICBM's.

DEFCON 1 - X-RAY LASER LAUNCH

When U.S. airspace is violated by ICBM's, a defense condition one will be called. (The notification and alarm will appear on the control screen only.) MAP01 or MAP03 will display the violated sector/s. The NXL launch site in this sector will be found in schedule INFO8. The designation must be entered on the control screen. The VRS schedule will display the sector for imaging. Enter the VRS designation.

On the image an altitude indicator for both ICBMs and the NXL below 1000 meters the ICBMs will start to detonate over their targets. Click on LAUNCH to launch the NXL. Monitor the relative altitudes. At a difference of less than 100 meters click on DETONATE to detonate. If the altitudes were correct the X-RAY blast should completely neutralize the sector.

WEAPONS

The groundbased chemical laser and the orbiting laser reflector (GCL/OLR) is a powerful precision system used against missiles in their boost phase. Refer to schedule INFO5. Both the GLC and OLR designations must be entered in order.

Free-electron lasers are guided by mouse control and lasing is fire button activated. Refer to schedule INFO2 (FEL).

Neutral particle beams focus high-energy quanta into disruptive straight beams. Refer to schedule INFO3 (NPB).

Electro-magnetic launchers fire ultra-high velocity smart bullets that track targets and detonate causing a destructive shock wave. Refer to schedule INFO4.

Nuclear-pulsed X-RAY laser launcher is a devastating last resort weapon that can only be used during a DEFCON 1.

MAPS

MAP01 — Western Hemisphere radar tracking.

MAP02 — Eastern Hemisphere radar tracking.

MAP03 — U.S.A. radar tracking.

MAP04 — Microlink transmissions stations.

MAP05 — U.S.S.R. radar tracking.

MAP06 — Global satellite plotting.

INFORMATION (INFnn) SCHEDULES

INF01 — Visual reconnaissance satellites

INF02 — Free-electron laser schedule.

INF03 — Neutral particle beam schedule.

INF04 — Electromagnetic launcher schedule.

INF05 — GCL/OLR combinations and schedule.

INF06 — Orbital quadrant scanner.

INF07 — MTI schedule.

INF08 — X-RAY laser launch sites.

Consult the schedules for data on operations, sectors, and designations. Return to the control screen (F7) and enter the appropriate designation.



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